

TACKLING SECURITY AND ECONOMIC CHALLENGES IN NIGERIA: THE ROLE OF MATHEMATICS EDUCATION

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ABSTRACT

The paper examines the performance of students in Mathematics SSCE from 2000-2011 and the carrying capacity of each tertiary institution's subsector in Nigeria. Admission into the tertiary schools in the country has been examined. Similarly, data on prison inmates from 2007 to 2011 has been provided and analyzed. This is with the aim of establishing a relationship between the SSCE mathematics performance, and admissions into tertiary institutions and its possible consequences on the security and economic challenges of the country. The data were obtained from the Annual Abstract of Statistics (2012) of the National Bureau of Statistics, and extract of similar studies previously made. Based on the result of the analysis obtained, the researcher deduced that there is a correlation between the performance of students in mathematics at SSCE level and enrolment into tertiary education level. It was also found that the performance of students in mathematics SSCE from the year 2000-2011 was averagely 40%. Similarly, admissions into tertiary institutions as at 2010 stood at 10%. Additionally, also there was a relationship ($r=0.40$), although weak, between the performance of students in Mathematics and Prison admissions from 2007-2011. Finally, it was observed that an average of 96% of the prison admissions from 2007-2011 was between the age 16-50year.

Keywords: Mathematics, performance, enrolment, tertiary institution, SSCE, security.

INTRODUCTION

There is no doubt that mathematics is one of the core subjects offered at all levels of education in Nigeria. Needless also to mention that a credit pass in mathematics is one of the major pre-requisite for admission into most higher education programmes in our tertiary institutions. The making of mathematics as a requirement and a compulsory subject to be offered right from primary school level was not without reason. It was with the view to prepare a child for the challenges ahead and inculcate in the child the spirit of inquiry and teaching the rudiments of numbers, letters, colors, shapes, forms, e.t.c, NPE (2004). It was also meant to equip students to live productively in our modern age of science and technology. Unfortunately, over the years, attainment of such objectives, visa-a-vis the possession of a minimum of a credit pass in the subject has been a nightmare among Nigerian secondary students. This resulted in many secondary schools graduates inadmissible into higher programmes in our higher institutions today. According to Uche and Chinyere (2013), only about 40% on average of the total number of students who sat for the West African Examinations Council (WAEC) and National Examinations Council (NECO) from 2000 to 2011 could obtain a pass credit in mathematics.



The result of this was also to mean that most of these inadmissible students will be roaming the streets or left without any job.

Nigeria has a youth population of over eighty million representing about 60% of its total population, NBS (2011). Similarly, in 2011, 37.7 percent were aged 15-24years, and 22.4 percent of those between ages 25 and 44 were willing to work but did not get jobs, Olabanji and Ese (2014). This is to mean that the aged 15-24-year youth, who made up of the 37.7%, are the potential admissible candidates into our institutions of higher learning. Unfortunately, their performance in mathematics at the SSCE level is not encouraging.

Some of the causes of insecurity in Nigeria include ethnicity, religious conflict, politically based violence, systematic and political corruption, economic-based violence, weak security system, unemployment, and poverty, among others, Olabanji and Ese (2014). Unemployment and poverty are the critical issues here. The direct resultant to unemployment is poverty, of course. However, unemployment itself could be viewed from two different angles; the employable unemployed and unemployable unemployed. The latter category is the subject of interest here. This is where the inadmissible candidates in tertiary institutions who could not obtain the minimum credit pass in mathematics fall.

It is against this background that the paper intends to examine the relationship between the mathematics achievement at SSCE level, admission rate into the higher institutions of learning, and to determine its implication on Nigeria's security and economic challenges.

Performance of students in Mathematics SSCE

As mentioned earlier, a credit pass in mathematics is not only a major requirement for admission into higher education level in Nigeria, but also is the parameter used to measure the performance of students in the Senior Secondary Certificate Examination (SSCE). Over the years, performance in Mathematics by students has persistently been poor, Zachariah et-al (2012). This was attributed to many factors including, student factors, socio-economic factors, school-based factors and government policies, Zachariah et-al (2012). Table 1 shows the percentage of students that scored a credit pass in mathematics SSCE WAEC/NECO from 2000 to 2011 as recorded by Uche and Chinyere (2013):

Table 1: Performance of students in Mathematics SSCE from 2000-2011

Year	Total no. of Candidates	No. with Credit (A1-C6)	% A1-C6
2000	643,371.00	11,090.00	32.81
2001	1,023,102	383,955	37.53
2002	908,235	309,409	34.06
2003	926,212	341,928	36.91
2004	832,689	287,484	34.52
2005	1,054,853	402,982	38.20
2006	1,181,515	482,123	41.73
2007	1,275,330	598,129	46.90
2008	1,369,142	779,863	56.96
2009	1,373,009	622,384	45.33
2010	1,351,557	560,974	41.51
2011	1,540,250	587,630	38.15
TOTAL	13,479,265.00	5,367,951.00	Ave: 40.38

Source:adopted from Uche and Chinyere (2013)

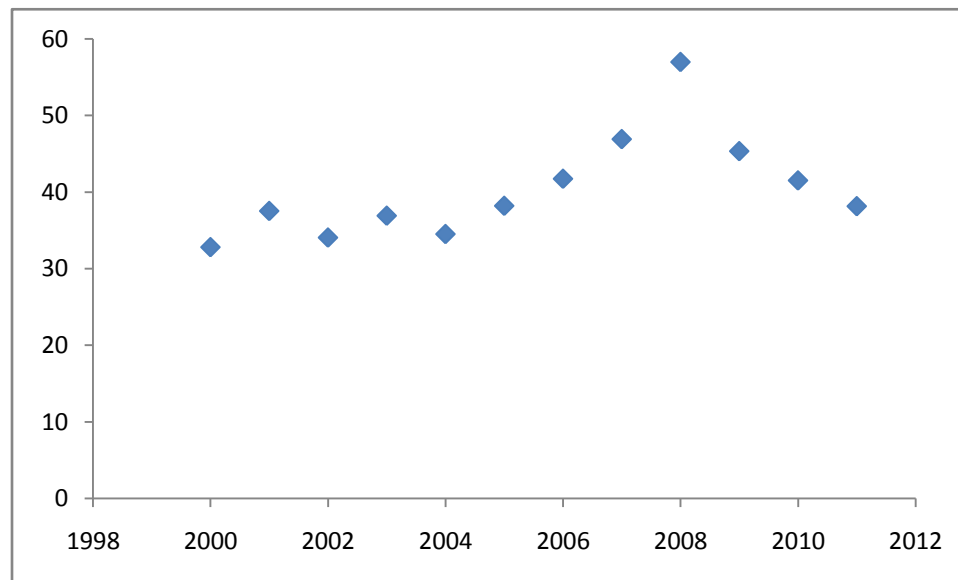


Fig 1: Performance of students in Mathematics SSCE from 2000-2011

The data above shows that although there was a slight increase in the percentage of credit pass obtained by the candidates from 2000 to 2008, however, the performance drastically dropped by 2009 through to 2011. Similarly, only an average of 40.38% of the candidates was able to obtain a credit pass in mathematics during the period under review. Although the researcher does not assume any possible cause of the drop in the performance, however, suggests that this may be as a result of socio-economic, teacher-education, curriculum and unstable educational policies.

The result implies that an average of about 60% of secondary schools students who are supposed to proceed to tertiary education from 2000 to 2011 couldn't make it. Thus, these candidates will not only be left roaming the streets but also forced into temptations resulting to a possible breach of law and order. This has the tendencies of raising the level of crime among the youth in our society. Additionally, security of any nation cannot be guaranteed when over 60% of its youth who are supposed to be in tertiary education level were not opportune to do so. Similarly, mathematics is the fulcrum on which every economic, scientific and technological development rotates. No nation could ever develop scientifically and technologically without sound mathematical education. It is therefore imperative that governments at all levels should pay more attention to mathematics education by providing quality teacher-education through the provision of modern teaching aids and enhanced study grants to mathematics teachers.

Admission into Nigeria`s tertiary education institutions

Although credit pass in mathematics is not the only requirement for admission into Nigeria`s higher institutions of learning, however, it plays a very significant role. Like many other developed and developing countries of the world, admission into Nigeria`s higher institutions is being faced with many challenges. Some of these challenges include: carrying capacity, the population of secondary school graduands, number of higher institutions, availability of courses desired by candidates, and candidate`s pre-requisite requirements among others. The total number of higher institutions in Nigeria stood at 320 as at the year 2010, Shu`ara (2010). These comprise of private (129), state (123) and federal (68) owned institutions. Of this total also, about 114 are Universities, 85 Colleges of education and 121 were Mono/Polytechnics. These figures, however, does not include the 65 innovative enterprise institutions that award professional certificate only.

Table 2: Distribution of Higher Institutions of Education by Ownership in Nigeria

INSTITUTION TYPE	PRIVATE	STATE	FEDERAL	TOTAL	%
UNIVERSITY	44	44	26	114	35.6
COLLEGES OF EDUCATION	21	43	21	85	26.6
MONO/POLYTECHNICS	64	36	21	121	37.8
TOTAL	129	123	68	320	100
%	40.3	38.4	21.3	100	

Source: Adopted from Shu`ara (2010)

The above analysis also shows that, of the 37.7% (15-24 year) of the tertiary school aged which stood at 57million candidates, an average of 178,125 candidates are expected to be admitted and accommodated by each institution. This also shows that 35.6% (20,520,000), 26.6% (15,390,000) and 37.8% (21,660,000) of the 57million can be accommodated by the Universities, Colleges of Education and Mono/Polytechnics, respectively (Table 3).



Table 3: Percentage and Average admission of students by Institution type

INSTITUTION TYPE	PRIVATE	STATE	FEDERAL	TOTAL	%	% of 57million	Average/Institution
UNIVERSITY	44	44	26	114	35.6	20,520,000.00	180,000
COLLEGES OF EDU.	21	43	21	85	26.6	15,390,000.00	181,059
MONO/POLYTECHNICS	64	36	21	121	37.8	21,660,000.00	179,009
TOTAL	129	123	68	320	100	57,000,000.00	178,125
%	41	39	22	100			

It is important to note here that on average, 180,000, 181,059 and 179,009 candidates are expected to be accommodated by each University, College of Education and Mono/Polytechnic, respectively. Although this may be unrealistic, however, the statistics above means that for every academic calendar year, 36%, 27% and 38% of the applicants are expected to be proportionately admitted by the Universities, Colleges of Education and the Mono/Polytechnics, respectively; this is without prejudice to each institution`s carrying capacity and entry requirement.

According to Shu`ara (2010), the study has shown that from 2004 to 2009, the percentage admission of candidates who applied to Nigerian Universities has never exceeded 19%. Similarly, an average gross percentage of tertiary students enrolment in Nigeria`s tertiary education stood at 10% as at 2010, UIS (2010, adopted from Ademola, Ogundipe and Babatunde, (2014)).

Insecurity situation in Nigeria

Insecurity in any nation can be caused by many factors as mentioned earlier. However, in this paper, the researcher is trying to establish a link between performance in mathematics and enrolment into tertiary education and its consequences on the security situation and economic challenges in the Country. Our concern here is not only about National security but human security. "Human security, in its broadest sense, embraces far more than the absence of violent conflict, Annan (2000). It encompasses human rights, good governance, **access to education** and healthcare and ensuring that each has opportunities and choices to fulfill his or her potential, Annan (2000). Every step in this direction is also a step towards reducing poverty, achieving **economic growth** and preventing conflict, Annan (2000). Freedom from want, freedom from fear, and the freedom of future generations to inherit a healthy natural environment -- these are the interrelated building blocks of human – and therefore national – security", Annan (2000). Provision of education to citizens is a fundamental issue in tackling insecurity. Providing education and employment especially to people within the age of 15-50 year is a parameter by which the security situation of a nation like Nigeria can be measured. Anything less than this will mean the society will be exposed to all sort of social vices like stealing, robbery, armed robbery, murder, assault, e.t.c.

Table 5: Prison Admissions by Age group from 2007-2011

PRISON ADMISSION FROM 2007-2011 BY AGE GROUP						
AGE	2007	2008	2009	2010	2011	TOTAL
0-15	2639	175	1704	1642	818	6,978.00
16-20	16236	25317	23743	21911	10103	97,310.00
21-25	57736	28049	27468	26647	14835	154,735.00
26-50	80134	73071	98263	118140	102330	471,938.00
51-ABOVE	2673	4132	5173	3541	3446	18,965.00
TOTAL	59,418.00	130,744.00	56,351.00	71,881.00	31,532.00	749,926.00

Source: NBS, Annual Abstract of Statistics (2012)

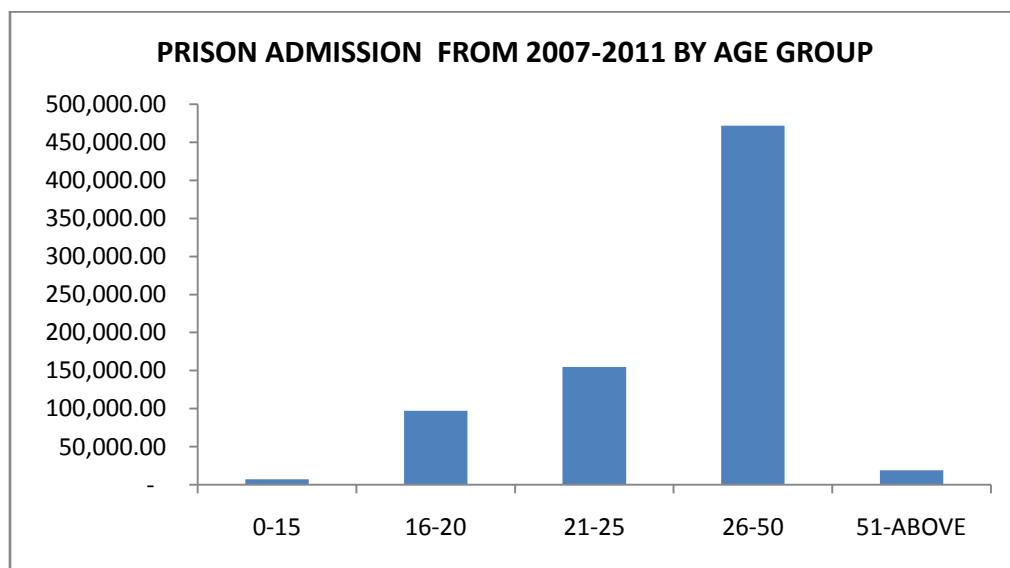


Fig 2:Prison Admission From 2007-2011 By Age Group

Table 6: Prison Admissions and % Performance in SSCE Mathematics from 2007-2011

Year	PRISON ADMISSIONS	% Performance IN MATHS
2007	154,106.00	46.9
2008	126,437.00	56.96
2009	149,474.00	45.33
2010	166,698.00	41.51
2011	131,532.00	38.15
Correlation coefficient =(0.40)		

It is observed from table 6 that, although statistically weak, there exist a relationship ($r=0.40$) between students’ performance in SSCE mathematics and number of prison inmates from 2007 to 2011. Note that the number of prison inmates is considered for only those between



the ages 16-50 year. Table 6 also shows that these prison inmates (16-50 year) are either in the age of tertiary education level; graduates who are not employed; or uneducated unemployed. This situation is not healthy for any developing country like ours.

DISCUSSION OF THE RESULTS

The data in table 1 shows that although there was a slight increase in the percentage of credit pass obtained by the candidates from 2000 to 2008, however, the performance drastically dropped by 2009 through to 2011. Similarly, only an average of 40.38% of the candidates was able to obtain a credit pass in mathematics during the period under review. This result agrees with the study by the WAEC and other researchers which states that only about 41.50% of the students who sat for SSCE mathematics obtained a pass credit in the subject (Jaiyeoba, 2011, cited in Mamman and Eye, 2014). The result was also supported by Maduabum et al. (2006), cited in Mamman and Eya (2014), whose finding indicates that performance in Mathematics SSCE is below 50%. Similarly, a comparison of four WAEC-member countries (Nigeria, Sierra-Leone, Gambia, and Ghana) indicates that average performance of students in mathematics WAEC is less than 58% (Bello and Oke, 2010).

Table 5 shows the number of Prison admission by age as recorded by the Nigeria Prison Headquarters from 2007-2011, and published by the National Bureau of Statistics (NBS, 2012) in its annual abstract of statistics. It could be observed that of the total of 749,926 prisoners, about 96.54% are within the age range of 16-50 year. Similarly, most of the offenses committed by these prisoners are offenses associated with murder, stealing, robbery, armed robbery, traffic-violation, Indian hemp, and assault. Those are offenses whose tendencies are mostly committed by young men and women.

CONCLUSION

Based on the result of the analysis above, the researcher concludes that there is a relationship between the performance of students in mathematics at SSCE level and enrolment into tertiary education level. It was also identified that the performance of students in mathematics SSCE from the year 2000-2011 was averagely 40%. Similarly, admission into tertiary institutions as at 2010 stood at 10%. Additionally, also there was a relationship ($r=0.40$), although weak, between the performance of students in Mathematics and prison admissions from 2007-2011. Finally, it was observed that an average of 96% of the prison admissions from 2007-2011 was between the age 16-50year.

RECOMMENDATIONS

For the socio-economic, scientific, technological as well as security challenges of the country to be tackled efficiently, the following measures should be taken:

1. Mathematics education and teaching should be giving the much-desired consideration. This can be achieved by giving special grants and frequent training and retraining of mathematics teachers especially at the secondary level of education. Similarly, special funds to sponsor

mathematics teachers and students should be allocated in the annual budgets of governments at all levels.

2. Infrastructural developments, provision of mathematical aids and qualified teachers should be given a special consideration at the tertiary level of education. As it was observed that lack of adequate facilities like class-rooms, lecture theatres, laboratories and sufficient and qualified teachers are among the major challenges facing mathematics education in particular and education in general in the country
3. Governments at all levels should see security and economic challenges beyond imprisonment of convicts only. As there are salient security and potential economic threats in all aspects of governance. Education sector should be seen as one of these areas. Therefore adequate attention and sufficient funds should be allocated to the sector to efficiently provide skills to our teeming youth who are unemployed because of lack of such skills.

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